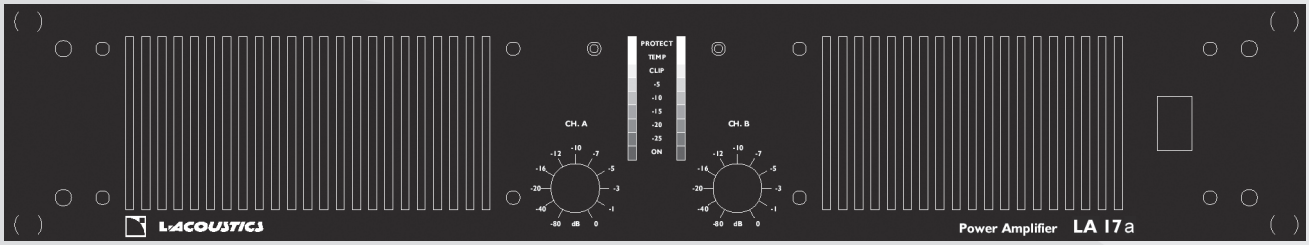
LA17a

2-CHANNEL POWER AMPLIFIER

L-ACOUSTICS PROFESSIONAL SOUND SYSTEM



- **2 x 430 W into 8 Ω**
  2 x 840 W into 4 Ω
  2 x 1200 W into 2 Ω
- **Compact design, 2 U high (88 mm)**
- **Lightweight (8 kg, 17.6 lbs)**
- **MLS™ switches offer power matching into different loads**
- **Electronically balanced inputs**
- **LED indicators show output voltage and headroom**
- **Output cooled by patented Intercooler®**
- **Two proportional speed fans**
- **Independent protection circuitry**
- **ALS™ short circuit protection**
- **DC protection**
- **Clip limiting**
- **VHF protection**
- **Thermal protection**
- **AC protection**

FEATURES

The LA17a is a compact, light-weight power amplifier (2 rack units high, 8 kg) designed for high quality touring applications and fixed installation. Capable of delivering up to 1200 watts per channel into 2 ohms, the LA17a can also be configured to match the power delivered to a wide range of impedance loads through use of Minimum Load Select (MLS) switches. MLS flexibility allows the LA17a to be customized to suit a variety of L-ACOUSTICS loudspeaker models and applications.

The switch-mode power supply (SMPS) employed in the LA17a is a modern solution to the weight and size problem. With SMPS technology, it is possible to use ferrite transformers instead of the heavy iron transformers and large electrolytic capacitors that are typical of conventional power amplifiers. Combined with the heat dissipation efficiency of the patented Intercooler® system, this results in a weight reduction of up to 60% when compared with conventional amplifiers of similar power ratings.

Earlier attempts at using SMPS technology for audio were less than impressive since they directly adopted the type of supply found in many computers today. The LA17a is different since a regulated SMPS has been implemented using push pull conversion without current limiting on the secondary side of the switching transformer. Instead, sense windings inject a magnetic pulse from the AC line during a pulse time segment which is separate from the output charge current pulse. The net result is a power supply with performance characteristics that are the same as a conventional power supply and capable of delivering high peak power, tight bass and detailed transient response.

Using SMPS technology it is also easy to stabilize the DC-rail voltage allowing the LA17a to deliver full power over a range of up to 20% supply voltage swings and at any AC mains frequency from DC to 400 Hz. This stabilization is obtained by controlling the magnetic energy in the ferrite transformer with pulse width processing and magnetic flux sense windings.

The twenty-four 250 watt bipolar power transistors employed in the LA17a are cooled by a patented solid copper heatsink, termed the Intercooler. Transistors are directly mounted onto the Intercooler for improved heat transfer and the heat sink is mounted horizontally in front of a pressure chamber that is created by two variable speed cooling fans. Specially designed thermal feedback circuitry protects against thermal breakdown and advanced linear active filtering is employed to reduce carrier noise and distortion in accordance with the strictest of EMC and RFI standards.

The LA17a is completely short-circuit protected and equipped with Adaptive Limiting System™ short circuit protection. ALS permits very high peak currents while keeping the transistors within their "Safe Operation Area". This makes it possible to run loudspeakers with impedance variations which are considerably lower than the rated nominal impedance of the power amplifier. Six more protection circuits protect the LA17a and the loudspeakers:

DC Protection : Two types of D.C. protection - fuses on the supply branches of each channel (IEC 65 requirement) and crowbar type protection that shorts the output.

Thermal Protection : Prevents the amplifier from overheating and causing damage to the output stages.

Clip Limiter : Prevents severely clipped waveforms from reaching the loudspeakers while maintaining full peak power.

VHF (Very High Frequency) Protection : Protects the loudspeaker against non-musical signals outside the audible frequency range.

AC Protection : Shuts down the outputs if the line voltage is outside the operating voltage of the LA17a.

All electronics are mounted on four modules that are easily accessible for repair or replacement.

LA 17a SPECIFICATIONS

OUTPUT POWER (EIA 1 kHz, 1% THD) [1]

Load	Configuration	MLS Switch Setting -3 dB	MLS Switch Setting 0 dB
16 ohms	Stereo (2 channel)	110 W	215 W
8 ohms	Stereo (2 channel)	220 W	430 W
4 ohms	Stereo (2 channel)	430 W	840 W
2 ohms	Stereo (2 channel)	870 W	1200 W
16 ohms	Mono Bridged	440 W	840 W
8 ohms	Mono Bridged	870 W	1680 W
4 ohms	Mono Bridged	1740 W	2400 W

SPEAKER PROTECTION
Each channel is fuse protected on the positive and negative power supply rails. Electronic short-circuit protection with a progressive characteristic. The output power is turned off for shorted output. The power amplifier can be run into short-circuits for a long time without damage and is open circuit and mismatch proof.

DISTORTION (4 ohms load)	
THD 20 - 20k Hz and 1 W to full power	0.04 %
THD at 1k Hz and -1 dB under clip	0.01 %
DIM 30 at -3 dB under clip	0.008 %
POWER BANDWIDTH [2]	5 - 20 kHz
SLEW RATE (1 kHz)	60 V/µs
OUTPUT IMPEDANCE	0.03 ohm
HUM AND NOISE below max power	< -110 dBA
CHANNEL SEPARATION	80 dB at 1 kHz 70 dB at 10 kHz
PHASE AND DELAY	
Deviation from perfect delay	± 1° (150 -20 kHz)
Total delay (input to output at 4 ohms)	3.5 µs
INPUTS	
Sensitivity (for full output into 4 ohms)	1.46 Vrms (5.5 dBu)
Gain	32 dB
Impedance	20 kohms, balanced
Common mode rejection at 1 kHz	50 dB

FRONT PANEL		
Gain controls	(2) Channel A , B	
Output display	(2) red + (10) green LEDs	Fast peak - slow release
Temp indicator	(2) yellow LEDs	80° C at heatsink
VHF indicator	(2) yellow LEDs	> 12 kHz at full power
On indicator	(2) green LEDs	DC rail voltage for channel A and B

REAR PANEL	
Input connectors	(2) Neutrik Combo XLR type 3 pin female & 1/4" jack and (2) XLR type 3 pin male
Output connectors	(2) Neutrik 4-pole Speakon connectors
Switches:	
Clip limiter A and B	On/Off (switchable)
MLS	0 or -3 dB

POWER	**Version 230V**	**Version 115V**
Nominal operating voltage	230 V AC	115 V AC
Operating voltage range	130 V - 265 V AC	65 V - 130 V AC
Minimum start voltage	175 V AC	85 V AC
Full output power at 4 ohms	180 V - 265 V AC	90 V - 130 V AC

Current Draw at 4 ohms and 230V		
Quiescent power (no load)	1 Arms	2 Arms
1/8 of full power (-9 dB)	6 Arms	12 Arms
1/3 of full power (-5 dB)	9 Arms	18 Arms
At full power (0 dB) at 1 KHz 1% THD	16 Arms	32 Arms

NET DIMENSIONS mm (inch)	483 (19") W x 88 (3.5") H x 287 (11.3") D
SHIPPING DIMENSIONS mm (inch)	560 (22") W x 180 (7.1") H x 500 (19.7") D
NET WEIGHT	8 kg (18 lbs)
SHIPPING WEIGHT	9.6 kg (21.2 lbs)

[1] Specifications measured with 230 V regulated AC

[2] VHF-protection turns off the channel for frequencies above 12 kHz at full power.

Approvals			
	CE	Emission	EN 55 103-1, E3
		Immunity	EN 55 103-2, E3, with S/N below 1% at normal operation level
		Safety	EN 60 065, class I
	ETL	ANSI / UL	STD 6500
		CAN / CSA	E60065-00

Specifications subject to change without notice **Specs LA17a 0103**

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